MODIS Science Team Member
Quarterly Report
(April-June, 1997)

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a) Focus activities during the reporting period

Emphasis was given to the development of the V2 code for atmospheric correction using the MODIS synthetic data set. The V2 code is the at-launch version in terms of interfaces/volumes/loads.

Work has been devoted to improve the reference code for atmospheric correction (6S).

Special attention has been given to validation of the land surface reflectance product MOD09 through mini validation campaings.

Vermote represented the land group at the weekly TT meetings and discipline group meetings.

Surface Reflectance Code

Version 2 surface reflectance code delivery (second thrust) has been scheduled for July 15. This aggressive schedule enables the rest of the products that depends on surface reflectance to be tested early on, when “improvements” on the surface reflectance code and its QA component could be worked out in a subsequent revision of the code (scheduled August 15th).

volumes and loads

Calculated updated (and more accurate) volumes and loads estimated for the MODIS L2 surface reflectance product (MOD09)

Major revisions for July 15Th version 2 delivery included:

- Creation of new transmittance and path radiance look-up-tables for atmospheric correction , using the last version of the 6S code.
- Modified the surface reflectance (MOD09) HDF file specifications to reflect updated metadata requirements imposed by ECS
- Enabled the adjacency correction algorithm
- Integrated the simulated L3 aerosol product as input to the MOD09 surface reflectance algorithm. Modified the code so that it can ingest the MODIS interim aerosol product (MOD04LA).

Testing

Prepared the MOD09 version 2.0 testing schedule

SDST/ECS Interface

Worked with the MODIS science team and the MODIS Science Data Support Team (SDST, code 922) to have the MODIS land/sea mask included within the MODIS geolocation product (MOD03)

Worked with SDST and ECS to enable access of multiple "versions" of an individual ECS metadata field on MODIS products. Obtained resolution on this issue and disseminated this information to the MODIS Land science team.

Worked with MODIS SDST (W. Yang, GSC, code 922) to iron out format bugs in the new V2 simulated MODIS L1B/geolocation/cloud mask simulated data.

Worked with MODIS SDST (R. Cember, RDC, code 922) to develop proper MODIS land V1 volumes and loads estimates.

Worked with MODIS SDST (R. Hucek, RDC, code 922) to obtain a single granule of MODIS ozone (MOD07) simulated data.

Reviewed the MODIS Emergency backup requirements document and sent comments to MODIS SDST.

Synthetic Data Set

Discussed with SDST members (Wenli Yang and Rich Hucek) about required input data.

Radiative transfer modeling

Corrections and updates of the 6S radiative code (Second Simulation of the Satellite Signal in the Solar Spectrum) (version 4.1) and of the manual (version 2.0) have been completed.

Validation activities

Grassland PROVE (Prototype Validation Experiment), May 20-30, La Jornada, New Mexico (EOS validation site) : BRDF surface samplings collected with a CIMEL instrument mounted on a cherry-picker. First results are satisfactory and encouraging.

b) Meetings Attended:

- MODIS Science Team meeting, College Park, May 15-17
- MODIS fire algorithm development meeting, April 1997
- VII^{eme} International Symposium on physical measurements and signatures in remote sensing, Courchevel, France, April 6-11th.

c) Publications

Vermote E.F., El Saleous N.Z., Justice C.O., Kaufman Y.J., Privette J., Remer L., Roger J.C. and Tanré D.,1997, Atmospheric correction of visible to middle infrared EOS-MODIS data over land surface, background, operational algorithm and validation, *Journal of Geophysical Research,* Vol 102,. d14, pp. 17,131-17,141

Vermote E. F., A. Vermeulen, H. Ouaidrari, and J. C. Roger, 1997 : Atmospheric correction for shortwave sensors (MODIS, ASTER, MISR, POLDER, SEAWIFS, MERIS, VEGETATION). Proceedings of the 7th International Symposium on physical measurements and signatures in remote sensing, Courchevel, France

Kaufman Y.J., Tanré D., Remer L., Vermote E.F. and Holben B.N. 1997, Operational Remote Sensing of Tropospheric Aerosol Over the Land from EOS-MODIS, *Journal of Geophysical Research,* Vol 102,. d14, pp. 17,051-17,068